UNITED STATES PATENT AND TRADEMARK OFFICE

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DICKSTEIN SHAPIRO LLP
1825 EYE STREET NW
Washington, DC 20006-5403

EXAMINER
GOMA, TAWFIK A

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>17 December 2007</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-15</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-15</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a) ☐ All b) ☐ Some * c) ☐ None of:

  1. ☐ Certified copies of the priority documents have been received.

  2. ☐ Certified copies of the priority documents have been received in Application No. _____.

  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>10/02/2007</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____

DETAILED ACTION

This action is in response to the amendments filed on 12/17/2007.

Claim Rejections - 35 USC § 101

Claims 14 and 15 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. The claim is directed to nonfunctional descriptive

material that does not constitute a statutory process, machine, manufacture, or composition of

matter. "Certain types of descriptive material, such as music, literature, art, photographs, and

mere arrangements or compilations of facts or data, without any functional interrelationship is

not a process, machine, manufacture, or composition of matter." (See MPEP 2106.01 Section II).

In the instant case, claims 14 and 15 recite providing data in the form of "test data" and "multi-

level data" on a medium which are used by something other than the medium and do not have a

physical or logical interrelationship among themselves.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powelson

(US 6940790) in view of Fujita et al (US 546420).

Regarding claims 1 and 13, Powelson discloses an information recording/reproducing

apparatus, comprising: a binary/multi-level data converting unit converting binary data into

multi-level data (404, fig. 4a, and fig. 4b); a test data generating unit generating test data

forming part of the multi-level data (202, fig. 2 and col. 10 lines 21-25); a data recording unit recording the multilevel data including the test data to an information recording medium (408, fig. 4a, 4b and col. 10 lines 21-25); a signal reproducing unit outputting reproduction signals of the multi-level data including the test data from the information recording medium (208, fig. 5); a test data examining unit examining the reproduction signals of the multi-level data including the test data to determine whether the test data is normal (820, fig. 8a and col. 22 lines 7-18); a waveform equalization unit equalizing a waveform of the examined test data when the test data examining unit determines that the test data is normal (col. 12 lines 61-67 thru col. 13 lines 1-5); and a multi-level determining unit determining multi-level data by referring to a pattern table generated using the examined test data (fig. 4b and col. 13 lines 7-17).

Further regarding claims 1 and 13, Powelson fails to disclose wherein determining whether the test data is normal comprises determining whether a distribution of the test data is within a predetermined range. Powelson discloses finding a mean squared difference between the target data and the recovered test data but fails to disclose using a distribution of the recovered data for the evaluation. In the same field of endeavor, Fujita discloses using a distribution of recovered data to calculate thresholds used in evaluating the data (col. 4 lines 60-67 through col. 5 lines 1-7). It would have been obvious to one of ordinary skill in the art to use a distribution of the test data in order to determine if the data is normal. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to use a distribution of data in order to compensate for abnormal differences in reflection values that may result from part of the test data.

Regarding claim 2, Powelson further discloses wherein the test data examining unit includes: a data distinguishing unit categorizing an input data frame into a test frame including the test data and a data frame (col. 6 lines 50-57); a distribution computing unit computing a frequency distribution of values for the reproduction signals of the test data (fig.7 and col. 16 lines 34-43); a feature amount detection unit detecting a feature amount of the computed frequency distribution (col. 17 lines 11-20); a comparing unit deciding whether the test data is normal by comparing the detected feature amount with a prescribed value (col. 21 lines 46-51); and a memory unit storing the values of the reproduction signals of the test data (col. 16 lines 44-49).

Regarding claim 3, Powelson further discloses wherein when the data distinguishing unit determines that the input data frame is the test frame, the waveform equalizing unit and the multi-level determining unit stop operating, the distribution computing unit starts computing the frequency distribution of the values for the reproduction signals of the test data, and the memory unit stores the test data (fig 8b).

Regarding claim 4, Powelson further discloses wherein when the comparing unit decides that the test data is normal, effective data in the memory unit is output to the waveform equalization unit for determining a coefficient of a filter of the waveform equalization unit according to automatic equalization algorithm, and the effective data is also output to the multi-level data determining unit for generating the pattern table (col. 12 lines 42-67 thru col. 13 lines 1-17).

Regarding claim 5, Powelson further discloses wherein the multi-level data determining unit includes: a pattern table generating unit generating the pattern table; and a multi-level data

detecting unit detecting the multi-level data by searching through the pattern table for a pattern which is similar to effective data in the memory unit (fig. 4b and col. 6 lines 58-67 thru col. 7 lines 1-4).

Regarding claim 6, Powelson further discloses wherein when the test data examining unit determines that the test data is normal, the multi-level data detecting unit outputs the effective data in the memory unit as multi-level data (figs. 8a-b).

Regarding claim 7, Powelson further discloses wherein when the comparing unit decides that the test data is abnormal, the test data from the information recording medium is examined again and input to the distribution computing unit (820-822, fig. 8a)

Regarding claim 8, Powelson further discloses wherein the test data is not used when the test data is again decided to be abnormal (822, fig. 8a).

Regarding claim 9, Powelson further discloses wherein one or more test data from the information recording medium is examined, wherein when the feature amount of the test data surpasses a prescribed range, the value of the reproduction signals of the test data surpassing the prescribed range is excluded (824, fig. 8a), wherein an average of the values of the reproduction signals of the test data except for the excluded test data is obtained for detecting the multi-level data (col. 22 lines 37-40).

Regarding claim 10, Powelson further discloses wherein the test data is allocated before and after the multi-level data (col. 10 lines 21-32).

Regarding claims 11, Powelson further discloses wherein the test data includes combinations of data comprising same numeric series (col. 8 lines 30-34).

Regarding claims 12, Powelson further discloses wherein the test data includes combinations of data comprising different numeric series (col. 8 lines 42-46).

Regarding claim 14, Powelson discloses an information recording medium comprising: multi-level data converted from binary data (fig. 4b), and test data used in reproducing the multi-level data (820, fig. 8a and col. 22 lines 7-18), wherein the test data includes combination of data comprising different numeric series (col. 8 lines 30-34), wherein the test data and the multi-level data is usable to to determine whether the test data is normal (820, fig. 8a and 21 lines 61-67 through col. 22 lines 1-18).

Regarding claim 15, Powelson discloses an information recording medium comprising: multi-level data converted from binary data (fig. 4b), and test data used in reproducing the multi-level data (820, fig. 8a and col. 22 lines 7-18), wherein the test data includes combination of data comprising same numeric series (col. 8 lines 42-46), wherein the test data and the multi-level data is usable to to determine whether the test data is normal (820, fig. 8a and col. 21 lines 61-67 through col. 22 lines 1-18).

Further regarding claims 14 and 15, Powelson fails to disclose wherein determining whether the test data is normal comprises determining whether a distribution of the test data is within a predetermined range. Powelson discloses finding a mean squared difference between the target data and the recovered test data but fails to disclose using a distribution of the recovered data for the evaluation. In the same field of endeavor, Fujita discloses using a distribution of recovered data to calculate thresholds used in evaluating the data (col. 4 lines 60-67 through col. 5 lines 1-7). It would have been obvious to one of ordinary skill in the art to use a distribution of the test data in order to determine if the data is normal. The rationale is as

follows: One of ordinary skill in the art at the time of the applicant's invention would have

been motivated to use a distribution of data in order to compensate for abnormal differences in

reflection values that may result from part of the test data.

Response to Arguments

Applicant's arguments filed 12/17/2007 have been fully considered but they are not

persuasive. In response to applicant's argument that Fujitsa et al (US 5469420) does not remedy

the deficiencies of Powerlson et al (US 6940790), because Fujitsa provides for the use actual

reproduction data in the evaluation as opposed to test data, the examiner respectfully disagrees.

Powelson provides for the use of test data to be evaluated using a mean squared error evaluation,

and the only deficiency of Powelson is the use of distribution of the test data in the evaluation

process. Fujita discloses the use of a distribution in evaluation reproduction data curing the

deficiency of Powelson, and one would have been motivated to make the combination for the

reasons recited in the rejection above The test for obviousness is not whether the features of a

secondary reference may be bodily incorporated into the structure of the primary reference; nor

is it that the claimed invention must be expressly suggested in any one or all of the references.

Rather, the test is what the combined teachings of the references would have suggested to those

of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this

case, the teachings of Fujitsa would have suggested to one of ordinary skill in the art at the time

of the applicant's invention the use of a distribution analysis to determine if the test data of

Powelson is normal.

In response to applicant's arguments that one of ordinary skill in the art would not have

looked to Fujitsa because Fujitsa does not use test data during the analysis, "A person of ordinary

skill in the art is also a person of ordinary creativity, not an automation." KSR, 550 U.S. at ___,

82 USPQ2d at 1397. "[I]n many cases a person of ordinary skill will be able to fit the teachings

of multiple patents together like pieces of a puzzle."Id. Office personnel may also take into

account "the inferences and creative steps that a person of ordinary skill in the art would

employ."Id. at ___, 82 USPQ2d at 1396.

In response to applicant's arguments that the examiner has not applied the Graham factors

in rejecting the claims under 35 U.S.C. 103, the examiner disagrees. It is unclear to the examiner

which of the Graham factors applicant is contending have not been satisfied by the rejection.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966),

that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The rejection properly applies the Graham factors by identifying what is disclosed in Powelson,

identifying the deficiencies in Powelson, identifying what is disclosed in Fujitsa, resolving that

one of ordinary skill in the art would be capable of combining the references and providing a

proper motivation. Applicant attacks the motivation provided by the examiner as an

"unsupported statement," but fails to articulate any support for why the motivation is not proper

for the combination of the references. (Applicant's arguments pages 11-12) "If an applicant

disagrees with any factual findings by the Office, an effective traverse of a rejection based

wholly or partially on such findings must include a reasoned statement explaining why the

applicant believes the Office has erred substantively as to the factual findings. A mere statement

or argument that the Office has not established a prima facie case of obviousness or that the

Office's reliance on common knowledge is unsupported by documentary evidence will not be

considered substantively adequate to rebut the rejection or an effective traverse of the rejection

under 37 CFR 1.111(b)." (See MPEP 2141 section IV).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to TAWFIK GOMA whose telephone number is (571)272-4206.

The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627

/Tawfik Goma/
Examiner, Art Unit 2627